

Recent observations of Abyssinian endemic bird species in Eritrea

Jason Anderson^a and Dawit Berhane^b

Observations récentes d'oiseaux endémiques aux hautes terres d'Abyssinie en Érythrée. Les longues périodes d'instabilité dans la région et la difficulté d'accès ont fait que peu de recherches ont été effectuées sur le statut actuel des oiseaux endémiques aux hautes terres d'Abyssinie en Érythrée. Nous rapportons des observations de ces espèces menées depuis 2002, et fournissons des détails sur leur statut, distribution, comportement alimentaire et nidification. Nous présentons les premières données confirmées de nidification en Érythrée pour l'Inséparable d'Abyssinie *Agapornis taranta*, le Barbican barré *Lybius undatus*, le Gobemouche chocolat *Melaenornis chocolatinus* et la Mésange à dos blanc *Parus leuconotus*, ainsi qu'une donnée probable concernant la nidification du Pic d'Abyssinie *Dendropicos abyssinicus*. Nous décrivons également trois sites clés, dont la protection est importante pour assurer la survie de ces espèces en Érythrée.

Summary. Due to long periods of instability in the region and difficulty of access, little research has been performed into the current status of bird species endemic to the Abyssinian highlands found in Eritrea. We report observations of these species made since 2002 and provide details on their status and distribution, feeding behaviour and nesting records, including the first confirmed breeding records of Black-winged Lovebird *Agapornis taranta*, Banded Barbet *Lybius undatus*, Abyssinian Slaty Flycatcher *Melaenornis chocolatinus* and White-backed Black Tit *Parus leuconotus*, as well as a probable breeding record for Abyssinian Woodpecker *Dendropicos abyssinicus*. We also describe three key sites, whose conservation is important to the continued presence of these species in Eritrea.

Of approximately 32 species endemic to the Abyssinian highlands of Ethiopia and Eritrea, 15 have been recorded in Eritrea (Ash & Atkins 2009, Redman *et al.* 2009). Whilst most of these species are well documented in Ethiopia, little research has been undertaken on their status and distribution in Eritrea since its independence from Ethiopia in 1991. Ash & Atkins (2009) and Redman *et al.* (2009) draw both on older records from Eritrea, pre-1991, as well as a smaller number of recent records, many of them from JA. Due to the long period of conflict before 1991, and more recent changes in land use, including reforestation programmes, dam-building and irrigation projects, changes in population and distribution are likely to have occurred for all the endemics.

Here we provide information on all 15 species concerning their status and distribution in Eritrea, as well as remarks on breeding, juvenile plumage, behaviour and food plants that augment our knowledge based on the available literature.

The accounts are based on our own observations in 2002–09 (DB) and 2007–09 (JA) in the country. There is a significant bias towards the Adi Keih sub-zone, mainly because JA was based there, but also because this area provides the

best-available habitat for many of these species in the highlands.

Notes on key sites where one or several of these species are present are also provided. Given that there are very few such sites in the highlands, we feel that these are in considerable need of conservation to ensure that Eritrea protects its Abyssinian endemics.

Wattled Ibis *Bostrychia carunculata*

Status and distribution Resident. No seasonal movements recorded. Whilst we found it fairly easy to locate feeding parties, due to the scarcity of suitable sites, the total population in Eritrea is probably small. We estimate <100 birds in the Adi Keih sub-zone, one of c.10–15 sub-zones where the species probably occurs. We recorded the species at 2,100–2,600 m (well within the known altitudinal range given in Brown *et al.* 1982), from Serajeka, 15 km north of Asmara where it is scarce, to Senafe sub-zone in the south, where it is commoner. Due to the increase in reservoir construction since independence, which has provided suitable feeding areas such as livestock pastures, and the increase in *Eucalyptus* (Myrtaceae) trees, which are used for roosting, it



Figure 1. Map of the Eritrean Highlands showing locations mentioned in the text (adapted from Ash & Atkins 2009 with permission)

Carte des hautes terres de Erythré indiquant les localités mentionnées dans le texte (d'après Ash & Atkins 2009, avec leur autorisation)

is probable that Wattled Ibis has recently extended its range further north.

Other observations A roost site in an inaccessible cave (40 m up a 50-m cliff) was found near Adi Keih where 4–8 birds often arrived *c.* 30 minutes before dusk. Most frequently noted feeding on grazing pastures (where they sometimes associate with cattle) in valleys, especially near reservoirs, although groups disperse during the wet season (July–October), and can then be found on agricultural land.

Rouget's Rail *Rougetius rougetii*

Status and distribution Resident. Due to the lack of suitable habitat, Rouget's Rail is never numerous in Eritrea, and is probably declining. However, in suitable habitat it can be common and easily located due to its far-reaching and often-heard call. Small territories recorded are consistent with the literature (Dorst & Roux 1973 in Urban *et al.* 1986). Commonest in Senafe and Adi Keih sub-

zones, but extends north to Asmara, where there are several known populations, for example at Mai Hutsa, and further north at Serejeka. Recorded by us at 2,200–2,600 m, i.e. within the known altitudinal range of 2,000–4,100 m (Urban *et al.* 1986).

Other observations Often in irrigated agriculture and even intensively farmed areas. Forages in fields as well as on grassy banks and under low vegetation or reeds. In some parts of Eritrea, Rouget's Rail appears to have adapted fairly well to the increase in human population and intensive agriculture around suitable habitat, where birds can become habituated to the presence of humans, foraging in the open in the vicinity of farmers, cowherds and livestock.

White-collared Pigeon *Columba albitorques*

Status and distribution All observations are from the Senafe sub-zone, where it is common, and the Adi Keih sub-zone, where scarcer, but common around Safira, where the species may breed. Rare further north. Seasonal movement possible, as the species tends to become scarcer in the north at the end of the dry season (February–April). All records by us are from above 2,300 m, i.e. within the known altitudinal range of 1,800–4,000 m (Urban *et al.* 1986).

Other observations Flocks regularly visit water to drink, and are most easily observed at reservoirs near Senafe. One suspected communal breeding record from a disused building near Tekwonda, Adi Keih sub-zone. Not persecuted by the local population.

Black-winged Lovebird *Agapornis taranta*

Status and distribution Resident. No seasonal movements noted. Widespread across the Eritrean highlands. Given suitable habitat, pairs and small flocks are fairly common. Recorded from Senafe sub-zone north to Debre Sina in Elabered sub-zone and west to Milezanay on the border of Gash Barka. Also fairly common around Adi Quala, indicating that it ranges across the western branch of the highlands. Recorded by us at 1,500–2,900 m, within the altitudinal range of 1,400–3,800 m given by Fry *et al.* 1988 (erroneously, Redman *et al.* 2009 mark the upper limit at 2,750 m, and Collar 1997 marks the lower limit at 1,800 m). Previously confirmed at sites significantly further north in the Nakfa area (Ash & Atkins 2009), thus



Figure 2. Pair of Black-winged Lovebirds *Agapornis taranta* at nest, Karibosa, April 2009 (Jason Anderson)
 Couple d'Inséparables d'Abyssinie *Agapornis taranta* au nid, Karibosa, avril 2009 (Jason Anderson)

this species is widespread throughout the Eritrean Abyssinian Highlands.

Other observations We have several breeding records, the first for Eritrea, all in cavities in *Euphorbia abyssinica* (Euphorbiaceae; old, dry trees), *Olea europaea* (Oleaceae) and *Rhus glutinosa abyssinica* (Anacardiaceae). Nest holes were c.4 cm in diameter, 4–6 m above ground. Birds were courting and preparing the nest site in April 2009 (at Karibosa, c.2,500 m, Fig. 2) and incubating eggs in March 2006 (in Mrara, c.1,500 m), with three breeding records in 2003, one in October (the other two month unknown), all at Debre Sina, c.2,400 m. A presumed juvenile photographed in December in Adi Keih sub-zone had faint brown markings on the throat and upper breast, and a paler lower mandible. Observed feeding on *Juniperus procera* (Cupressaceae), *Acokanthera schimperi* (Apocynaceae), *Ficus sycomorus* (Moraceae) and *Euphorbia abyssinica*.

Banded Barbet *Lybius undatus*

Status and distribution Resident. No seasonal movements noted. *L. u. thiogaster* is frequent to common in almost any area of native trees in range, sometimes in towns and villages. In contrast, Short & Horne (2001: 190) described the species as 'local and usually uncommon'. Recorded from Senafe sub-zone north to Adi Teklezan sub-zone, although Ash & Atkins (2009)

mention records slightly further north-west near Keren and further north near Afabet. Recorded by us at 1,650–2,900 m, within the altitudinal range of 300–3,040 m given in Fry *et al.* (1988). Ash & Atkins (2009) and Redman *et al.* (2009) give slightly narrower altitudinal ranges of 450–2,280 m and 450–2,750 m, respectively.

Other observations One confirmed breeding record in Senafe sub-zone, the first for Eritrea, and possibly the only description of a nest for the species to date (Fry *et al.* 1988, Short & Horne 2001). A pair was observed feeding at least one chick in a nest within a *Ficus vastus* (Moraceae) in May 2004. The nest hole was 3 m above ground, and 4–5 cm in diameter. In March 2009, a bird was seen inspecting a possible nest site c.4 m above ground, also 4–5 cm in diameter, in Karibosa, Adi Keih sub-zone (photographed). The species was observed feeding on fruit of *Ficus thonningii*, *F. vastus* (Moraceae), *Bersama abyssinica* (Melianthaceae) and *Gymnosporia senegalensis* (Celastraceae).

Abyssinian Woodpecker *Dendropicos abyssinicus*

Status and distribution Uncommon. Presumed resident. Recorded only six times by us, at



Figure 3. Male Abyssinian Woodpecker *Dendropicos abyssinicus* prospecting nest hole, Filfil Sabur, January 2009 (Jason Anderson)

Pic d'Abyssinie *Dendropicos abyssinicus* mâle inspectant une cavité, Filfil Sabur, janvier 2009 (Jason Anderson)

widespread locations across the highlands; Filfil Sabur, at 1,300 m (twice), lower than previously recorded (Fry *et al.* 1988; Redman *et al.* 2009 cite 1,300 m, based on our records), Milezanay at 1,900 m, near Elabered at 1,600 m, near Gheleb at 1,800 m, and near Adi Keih at 2,300 m. The records at Elabered and Gheleb confirm the species' presence further north than previously recorded (Ash & Atkins 2009).

Other observations A pair observed at Filfil Sabur in January 2009 at a presumed breeding site, where the male was photographed inspecting a *c.* 3-cm diameter hole *c.* 5 m above ground in a dead *Juniperus procera* (Fig. 3). The female was nearby. As well as its known preference for *Euphorbia* (Euphorbiaceae) and *Juniperus* (Cupressaceae) (Fry *et al.* 1988), we also recorded the species in *Acacia* and in mixed broadleaf woodland.

Rüppell's Black Chat *Myrmecocichla melaena*

Status and distribution Resident. No seasonal movements noted. Common in suitable habitat in Senafe and Adi Keih sub-zones, but not recorded further north. All records at 2,300–3,000 m (slightly higher than the 2,830 m given in Ash & Atkins 2009), with one notable exception, at *c.* 1,700 m, where a pair was recorded in a steep rocky valley with a permanent freshwater spring on Mereb escarpment, 10 km west of Adi Keih. Ash & Atkins (2009) report the species occasionally descending to 1,060 m in Ethiopia.

Other observations One presumed juvenile, photographed near Adi Keih in January 2009, had a pale yellow gape, but was otherwise similar



Figure 4. Juvenile Rüppell's Black Chat / Traquet de Rüppell *Myrmecocichla melaena*, Adi Keih, January 2009 (Jason Anderson)

to adults (Fig. 4). Preference for rocky areas often in gorges and near water is consistent with the literature (Keith *et al.* 1992). Tolerant of introduced *Opuntia ficus-indica* (Cactaceae) prickly pear cactus.

White-winged Cliff Chat *Thamnolaea semirufa*

Status and distribution Uncommon to rare. Only four records, all by DB: at Debra Sina, Elabered sub-zone (in 2003 and 2004; months unknown), in Gheleb sub-zone at 1,800 m (in 2003; month unknown), and at Mai Seraw, Segeneiti sub-zone at 1,850 m in May 2006 (where also observed by K. Harte). These altitudes are typical for the species (Ash & Atkins 2009). The Debra Sina and Gheleb sightings confirm the species *c.* 100 km further north than previously recorded in Eritrea (Ash & Atkins 2009).

Other observations Observed in a steep, rocky valley, at an opening in olive-dominated broadleaf woodland in Gheleb, in open riparian woodland dominated by *Acacia* (Fabaceae) at Mai Seraw, Segeneiti sub-zone, and in a steep, rocky valley with *Ficus* (Moraceae) and *Euphorbia* spp. at Debra Sina, Elabered sub-zone.

Ethiopian Cisticola *Cisticola (galactotes) lugubris*

Status and distribution Resident. No seasonal movements noted. Common in suitable habitat in the southern highlands, especially in Senafe and Adi Keih sub-zones, at 2,100–2,900 m. Altitudinal ranges in the literature vary widely for this species. Ryan (2006) gives 1,500–2,600 m, whereas Redman *et al.* (2009) state 700–4,000 m. Also fairly common in suitable habitat further north in Filfil Sabur, where recorded at 1,500 m, and further west at Menguda, in Dbarwa sub-zone, extending its range into the western branch of the highlands. Ash & Atkins cite a record of *C. galactotes* much further west, near the Sudanese border, based on a specimen collected in 1953 held at the Natural History Museum (BMNH), Tring, labelled as *C. g. lugubris* (BMNH 1953.35.14). JA examined this specimen in August 2009 and compared it to two specimens of *C. (g.) lugubris* from highland Eritrea, finding its general appearance closer to specimens of *C. (g.) marginatus* from Sudan, although subspecies identification could not be confirmed. O. Davies (pers. comm.), having examined the same specimen in November 2010, also believed that it represented *C. (g.)*

marginatus, based on the collection locality, size and the absence of dark feather centres to the uppertail-coverts. The latter observer took the following measurements of BMNH 1953.35.14: wing 56.51 mm, tail 47.88 mm, bill 14.71 mm and tarsus 19.82 mm. For adult male summer specimens of relevant taxa, OD has the following measurements (mean with standard deviation in parentheses). *C. (g.) lugubris*: wing ($n=6$) 62.06 (2.05) mm, tail ($n=6$) 51.57 (3.97) mm, bill ($n=5$) 15.46 (0.24) mm and tarsus ($n=6$) 21.93 (0.65) mm; and *C. (g.) marginatus*: wing ($n=5$) 56.41 (1.08) mm, tail ($n=5$) 50.9 (1.55) mm, bill ($n=5$) 14.84 (0.62) mm and tarsus ($n=5$) 20.05 (0.13) mm.

Other observations One observed collecting nesting material (dried grass) on 31 May 2009, building a nest in vegetation on a steep bank overhanging a small pool of water, 2 m above the water level. Due to the inaccessibility of the site, the nest itself was not found.

Abyssinian Slaty Flycatcher *Melaenornis chocolatinus*

Status and distribution Resident. No seasonal movements noted. Although habitat specific, it is usually fairly common, with five individuals observed within 1 km² at Hawatsu. Only recorded in Adi Keih sub-zone, although probably also

occurs in Senafe sub-zone. Reliable locations include Hawatsu and Karibosa. Recorded at 2,300–2,600 m, i.e. within the altitudinal range of 1,820–3,200 m given by Ash & Atkins (2009).

Other observations Confirmed breeding, the first record for Eritrea, when a juvenile was observed and photographed, begging food from adults at Hawatsu in Adi Keih sub-zone in late September 2008. The juvenile had black irides, and was strongly streaked white over the dark brown crown and nape, with dark brown streaks on the pale grey breast, and pale streaks across the median coverts and along the tips of the primary-coverts (Fig. 5). Urban *et al.* (1997: 442, citing Desfayes 1975) state that it ‘hunts in typical fly-catcher manner’ ‘usually >3 m above ground, and sometimes darts to ground for an insect’. In contrast, JA observed birds feeding near Adi Keih, in riparian woodland where native trees such as *Acacia* and *Ficus* spp. are found around well-grazed grassy areas. Individuals were often seen scanning the ground from perches of <3 m, frequently dropping to the ground to forage for insect and invertebrate prey, more frequently than taking airborne prey.

White-backed Black Tit *Parus leuconotus*

Status and distribution Rare. Only four records by us, all in 2008–09 on the eastern escarpment



Figure 5. Juvenile Abyssinian Slaty Flycatcher / Gobemouche chocolat *Melaenornis chocolatinus*, Hawatsu, September 2008 (Jason Anderson)

Figure 6. Juvenile White-backed Black Tit / Mésange à dos blanc *Parus leuconotus*, Safira, October 2008 (Jason Anderson)

in Adi Keih sub-zone, at Safira (two records near Qohaito archaeological site in October 2008 and January 2009), Karibosa in April 2009 and Demhina in February 2008. All sites were within 15 km and at 2,000–2,600 m. These are the first confirmed records since 1957 (Gosler & Clement 2007). Previous records exist from further north, between Keren and Afabet (Ash & Atkins 2009), although we were unable to confirm the species in this area.

Other observations Confirmed breeding, the first record for Eritrea, when a juvenile was observed with a party of five other birds begging food from adults at Safira in October 2008. The juvenile appeared identical to the adults, except for its pale brown inner gape (Fig. 6). It was emitting frequent high-pitched calls. A party of six was observed feeding on shrubs mixed with the introduced *Opuntia ficus-indica*. Birds were observed gleaning for insects on *Juniperus procera* and *Ficus sycomorus*.

Abyssinian Oriole *Oriolus monacha*

Status and distribution Resident. No seasonal movements noted. All our records are from the narrow band of broadleaf woodland that extends across the steep eastern escarpment of the highlands, from Ghinda north to Mrara in Leminat sub-zone. Fairly common at Filfil Solomuna, in the centre of this area, but otherwise uncommon. Recorded by us at 1,000–2,000 m (Ash & Atkins 2009 give an elevational range of 900–2,420 m). Previously recorded in the Adi Keih/Senafe area (Ash & Atkins 2009), although, despite extensive searches, we did not find it there and it has probably become extinct in this area due to severe deforestation during recent conflicts.

Thick-billed Raven *Corvus crassirostris*

Status and distribution Rare, probably a vagrant to Eritrea. Only one record, by DB, from Debre Sina, Elabered sub-zone, in 2004 (month unknown) at c.2,400 m. Only four previous confirmed records in Eritrea (Ash & Atkins 2009). Fry *et al.* (2000: 552) note it to be 'uncommon to frequent' in Eritrea, possibly based on records by Smith (1957). If so, the species may have declined significantly in recent years.

White-billed Starling *Onychognathus albirostris*

Status and distribution Resident. No seasonal movements noted. Given suitable habitat, the species is fairly common in Senafe and Adi Keih sub-zones, with significant numbers (80 in February 2009) roosting and possibly breeding on the Metera monolith very near Senafe town. Interestingly, a small population was also observed in Adi Quala sub-zone, in the western branch of the highlands, at 1,700 m, where there are suitable roosting cliffs. This is probably an isolated population, and has not been reported previously (Fry *et al.* 2000, Ash & Atkins 2009). Recorded at 1,700–2,800 m, confirming the species at altitudes much lower than previously recorded in Eritrea (2,460 m; Fry *et al.* 2000, repeated in Ash & Atkins 2009). Feare & Craig (1998) give a minimum of 2,000 m in Ethiopia, but do not mention that the species occurs in Eritrea. Vivero Pol (2006: 58) states 'rarely below 1,800 m'.

Other observations One confirmed breeding record from Adi Keih sub-zone. A nest lined with grass and sticks was found in a crevice 5 m up on cliffs near Safira, where one bird was seen incubating in mid-September 2008.

White-throated Seedeater *Serinus xanthopygius*

Status and distribution Resident. No seasonal movements noted. Rarely common; usually seen in feeding parties of 2–6 birds. The species avoids the highest parts of the highlands, but does occur on both the eastern and western escarpments, and was recorded from Senafe sub-zone north to Filfil Solomuna along the eastern escarpment, and from Adi Quala sub-zone north to Adi Neami sub-zone on the western escarpment. Usually found at 1,000–2,000 m, occasionally to 2,200 m, consistent with its published elevation range (Fry *et al.* 2000, Ash & Atkins 2009). Previously recorded as far north as Nakfa with one record much further west, near Tesseney (Ash & Atkins 2009).

Other observations Extensively observed by DB at Menguda in Dbarwa sub-zone, where it is associated very closely with Brown-rumped Seedeaters *S. tristriatus*. A juvenile was also observed at Menguda, in August 2007, begging food from adults. Found in a fairly wide variety of habitats in open country, including cultivated farmland, scrubland, open broadleaf and *Acacia* woodland, but nearly always near watercourses. Observed

feeding on the introduced *Optunia ficus-indica* and more commonly on the introduced *Nicotiana glauca* (Solanaceae), for which the species has a strong preference.

Key sites for the Abyssinian endemics in Eritrea

Eastern Escarpment rain forest from Gheleb through Filfil to Ghinda (15°46'33"N 38°47'58"E to 15°22'57"N 39°05'55"E; 800–1,800 m)

BirdLife International designated Important Bird Areas ER003 (15°40'N 38°53'E; c.20,000 ha) and ER006 (15°27'N 39°05'E; c.78,000 ha) both lie within this area (Fishpool & Evans 2001). The area known as 'Filfil', or 'Semenawi Keyih Bahri' (northern Red Sea) lies at the heart of Eritrea's only substantial remaining tract of native forest (Fig. 7). The forest stretches in a narrow band across the eastern escarpment, from Gheleb south to Ghinda, c.60 km further south-

east. Altitude ranges from 1,800 m to below 800 m, and several forest types occur, from *Olea europaea* and *Juniperus procera* dominated forest at higher altitudes, to *Combretum* (Combretaceae) dominated broadleaf forest below 1,300 m. In some areas, cultivation, heavy livestock grazing and the introduction of alien species have reduced or degraded the native forest, and elsewhere, presumed second-growth woodland with small stands of primary growth remain intact. The areas around Gheleb, Mrara, Filfil Medhanit and Agomeda are some of the best-preserved tracts and are in need of permanent protection to prevent their degradation. Officially, the area around Filfil, where the main road descends the escarpment is accorded protected status and monitored for illegal activity, and there is evidence of natural reforestation at some locations near Sabur, Medhanit and Filfil Solomuna. However, the presence of several invasive species, including one presumed invasive bindweed may be a greater danger to the health of the forest. Other areas are



Figure 7. Cloud rain forest at 1,000 m, Filfil Medhanit, Eritrea (Jason Anderson)

Forêt ombrophile à 1.000 m, Filfil Medhanit, Érythrée (Jason Anderson)



Figure 8. Hawatsu Cope, Eritrea, 2,300 m (Jason Anderson)

Les bosquets de Hawatsu, Érythrée, 2.300 m (Jason Anderson)

vulnerable to deforestation. Abyssinian endemics found here include: Black-winged Lovebird, Banded Barbet, Abyssinian Woodpecker (suspected breeding here), Abyssinian Oriole, Ethiopian Cisticola, White-throated Seedeater, and possibly White-winged Cliff Chat. Several near-endemics (either endemic to the Horn of Africa or the Abyssinian highland massif) also occur, namely Erckel's Francolin *Francolinus erckelii*, White-cheeked Turaco *Tauraco leucotis*, Blue-breasted Bee-eater *Merops (variegatus) lafresnayii*, White-rumped Babbler *Turdoides leucopygia* and Brown-rumped Seedeater *Serinus tristriatus*. Other forest species found at their northernmost limits in Africa include African Olive Pigeon *Columba arquatrix* (recently discovered in Eritrea; Anderson 2010) Narina's Trogon *Apaloderma narina*, Ethiopian Boubou *Laniarius (a.) aethiopicus*, African Paradise Flycatcher *Terpsiphone viridis*, Northern Puffback *Dryoscopus gambensis*, Brown Woodland Warbler *Phylloscopus umbrovirens* and White-crested Helmetshrike *Prionops plumatus*. Several larger mammals also occur in these forests, including Leopard *Panthera pardus*, Black-backed Jackal *Canis mesomelas*, African Civet *Civettictis civetta*, Greater Kudu *Tragelaphus strepsiceros*, Bushbuck *Tragelaphus scriptus*, Common Warthog *Phacochoerus africanus*, Bush Pig *Potamochoerus larvatus*, Sacred Baboon *Papio hamadryas*, Grivet Monkey *Cercopithecus (aethiops) aethiops* and Crested Porcupine *Hystrix cristata* (mammal taxonomy follows Kingdon 2003). Given the new road passing through it, Filfil is easily accessed and

ecotourism is definitely possible, providing the forest is safeguarded.

Hawatsu Cope (14°53'06"N 39°20'24"E; 2,330 m)

Not currently included in any Important Bird Area (Fishpool & Evans 2001). This is a small area of woodland in Adi Keih sub-zone, located in a small gorge with a permanent water supply upstream of the reservoir at Hawatsu (Fig. 8). There are c.3–4 ha of scattered native woodland here, both open and closed, including several stands of mature trees, including *Ficus* and *Juniperus procera*. The trees have been preserved due to the presence of a Christian pilgrimage site and a small church (Enda Awbune Hariya). The locals are fearful of cutting down the trees or disturbing the wildlife due to the area's religious significance. Despite its tiny size, the cope supports the following Abyssinian endemics: Wattled Ibis (roosts here, may nest on the cliffs above the gorge), Black-winged Lovebird, Banded Barbet, Abyssinian Woodpecker (recorded nearby, nest holes in *Juniperus procera* indicate it may breed in the cope), Rüppell's Black Chat, Abyssinian Slaty Flycatcher (breeds here) and White-billed Starling. It also supports the following near-endemics: Erckel's Francolin, White-cheeked Turaco, Blue-breasted Bee-eater, White-rumped Babbler, Abyssinian Black Wheatear *Oenanthe (lugens) lugubris*, Swainson's Sparrow *Passer swainsonii* and Brown-rumped Seedeater. Whilst the pilgrimage site will probably protect most of the larger trees, there is small-scale harvesting at the edges of the cope which, combined with heavy grazing, mean that over time the trees could fail to regenerate. With protection, the cope would quickly regenerate and could extend over nearby hillsides to safeguard these important bird species. Ease of access to the main road also makes it a perfect place to promote ecotourism in Eritrea.

Karibosa (14°54'50"N 39°25'15"E; 2,500 m)

Not currently included in any Important Bird Area (Fishpool & Evans 2001). This is a small isolated Saaho village in Adi Keih sub-zone c.8 km further north along the dirt road from the famous archaeological site of Qohaito. The village lies in a hanging valley with several permanent streams. Along the streams, a significant number of native tree species have been preserved in c.4 ha

of riparian woodland, including: *Ficus thonningii*, *F. vastus*, *Bersama a. abyssinica*, *Olea europaea*, *Rhus glutinosa abyssinica* and *Juniperus procera*. Steep cliffs around the valley harbour several of the cliff-nesting Abyssinian endemics, which may breed there. The woodland has probably been preserved due to the low human population, which traditionally migrated to the lowlands for several months of the year, combined with the plentiful water supply, which permits new trees to grow and coppiced trees to regenerate. We suspect that there has been a recent small increase in harvesting, mainly to produce charcoal for sale. This is a gradual threat to the forest here and the trees require protection if the Abyssinian endemics are to remain. It supports the following endemics: White-collared Pigeon, Black-winged Lovebird (breeding confirmed), Banded Barbet (probably breeding), Rüppell's Black Chat, Abyssinian Slaty Flycatcher, White-backed Black Tit and White-billed Starling (breeding confirmed nearby). The following near-endemics also occur: Erckel's Francolin, White-cheeked Turaco, Blue-breasted Bee-eater, White-rumped Babbler, Abyssinian Black Wheatear, Swainson's Sparrow and Brown-rumped Seedeater. In addition, Montane Nightjar *Caprimulgus poliocephalus* is found here (recently discovered in Eritrea; Anderson 2010), along with Verreaux's Eagle Owl *Bubo lacteus*, Slender-billed Starling *Onychognathus tenuirostris* (both rare in Eritrea) and African Olive Pigeon. Whilst it is only accessible with a 4 × 4 vehicle, given the site's proximity to the Axumite archaeological site of Qohaito, Karibosa would also be a suitable place for the promotion of ecotourism in Eritrea.

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- ^a c/o 5 Wilton House, St. Paul's Cray Road, Chislehurst, Kent BR7 6QG, UK. E-mail: jasonanderson1@gmail.com
- ^b PO Box 5368, Asmara, Eritrea. E-mail: dapr@tfanus.com.er

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